ENVIRONMENT MATTERS

MESSAGE FROM ESRAG CHAIR, MICHAEL TERRELONGE

Welcome to the May issue of the ESRAG Newsletter.

Earth Day 2026 on April 22 reflected a fundamental truth: environmental progress doesn't depend on any single administration or election. It's sustained by daily actions of communities, educators, workers, and families protecting where they live and work. This year, more than a billion people were mobilized in 193 countries. Earth Day 2026 affirms that environmental progress is real, resilient, and ongoing despite policy uncertainty. Local systems—cities, schools, Tribal nations—continue implementing solutions that strengthen energy reliability, conserve resources, and reduce risk because they're grounded in economic sense and public safety.

The Resilience of "Large Ocean States"

This month, as we look to the Small Island Developing States (SIDS), we embrace a more accurate term: **Large Ocean States.** These nations steward nearly 30% of our world's oceans and are the true frontlines of climate innovation.

May marks the second anniversary of the **Antigua and Barbuda Agenda for SIDS (ABAS)**, a 10-year roadmap for resilient prosperity. This anniversary is a reminder that the challenges faced by islands—from rising seas to economic debt—require the same community-grounded solutions we championed on Earth Day.

Reflecting on Hurricane Melissa

The urgency of this work is felt most acutely as we approach **Hurricane Preparedness Week (May 3–9)**. Last year, **Hurricane Melissa** reminded us of the stakes. As the most potent Atlantic storm on record, its impact was a call to action for Rotary. In my recent presentation at our District Conference, I shared our experience with Melissa's unprecedented strength and the incredible resilience shown in our response.

As we prepare for the 2026 season, we know that "building back better" isn't enough—we must build for a new reality. Rotary's role in disaster risk reduction is more critical than ever; by protecting the natural infrastructure of these Large Ocean States, such as mangroves and reefs, we create our first and best line of defense.

May: A Month for Biodiversity

This month we celebrate biodiversity and three World Days, including **International Day for Biological Diversity (May 22**)—the 2026 theme of which is "**Acting locally for global impact**." We also celebrate **World Migratory Bird Day** and **World Bee Day (May 20).**

These campaigns aim to instill a sense of urgency. From the smallest pollinators to the vast ecosystems of our Large Ocean States, we must act now to meet both the near-term targets of the Global Biodiversity Framework and the SDGs.

Michael Terrelonge,
ESRAG Chair

GLOBAL NEWS

THREE WORLD BIODIVERSITY DAY

This month we celebrate Biodiversity and three World Days:

9 May: ***World Migratory Bird Day*** *highlights the power of citizen science*

Every bird counts!
World Migratory Bird Day Make a difference by counting birds for conservation

22 May: ***International Day for Biological Diversity*** *spotlights nature's role in livelihoods and local economies*

This International Day for Biological Diversity, under the theme "Harmony with nature and sustainable development", highlights how this plan for nature connects with the Sustainable Development Goals (SDGs), showing that both agendas must advance together as they support one another.
This campaign also aims to instill a sense of urgency. We must act now. By 2025, only five years will remain to meet both the near-term targets of the Global Biodiversity Framework and the SDGs.

20 May: ***World Bee Day***

World Bee Day presents an opportunity to step up our efforts to protect bees and other pollinators. Today bees, pollinators, and many other insects are declining in abundance. This day provides an opportunity for all of us – whether we work for governments, organizations or civil society or are concerned citizens – to promote actions that will protect and enhance pollinators and their habitats, improve their abundance and diversity, and support the sustainable development of beekeeping.

ESRAG AT EARTHX: ROTARY ENVIRONMENTAL LEADERSHIP ON A GLOBAL STAGE

By Angela TenBroeck

The recent EarthX gathering, led through the vision and dedication of Steve Bender, was a remarkable demonstration of what becomes possible when innovation, service, and environmental stewardship converge. The event showcased how Rotary-driven initiatives are delivering measurable impact for communities and ecosystems around the world.

Through the special Rotary presence at EarthX, attendees experienced a powerful cross-section of projects focused on water restoration, river cleanup, climate resilience, biodiversity, circular economy solutions, and peacebuilding. It was more than a conference—it was a living example of action at scale.

One of the most encouraging outcomes was the strong participation from both long-standing members and new voices within ESRAG. Leaders representing multiple ESRAG task forces came together to exchange ideas, strengthen partnerships, and accelerate practical solutions. This level of collaboration reflects the growing momentum within the organization and the increasing relevance of Rotary's environmental mission.

Among the standout contributors were inspiring champions of river restoration and watershed protection, often described as the "rockstars" of cleanup efforts—individuals and teams doing the hard, consistent work of restoring waterways and mobilizing communities. Their presence reminded all attendees that local action can create global change.

The event also featured the thoughtful engagement of Braver Angels, whose work in bridging divides and strengthening civil discourse added an

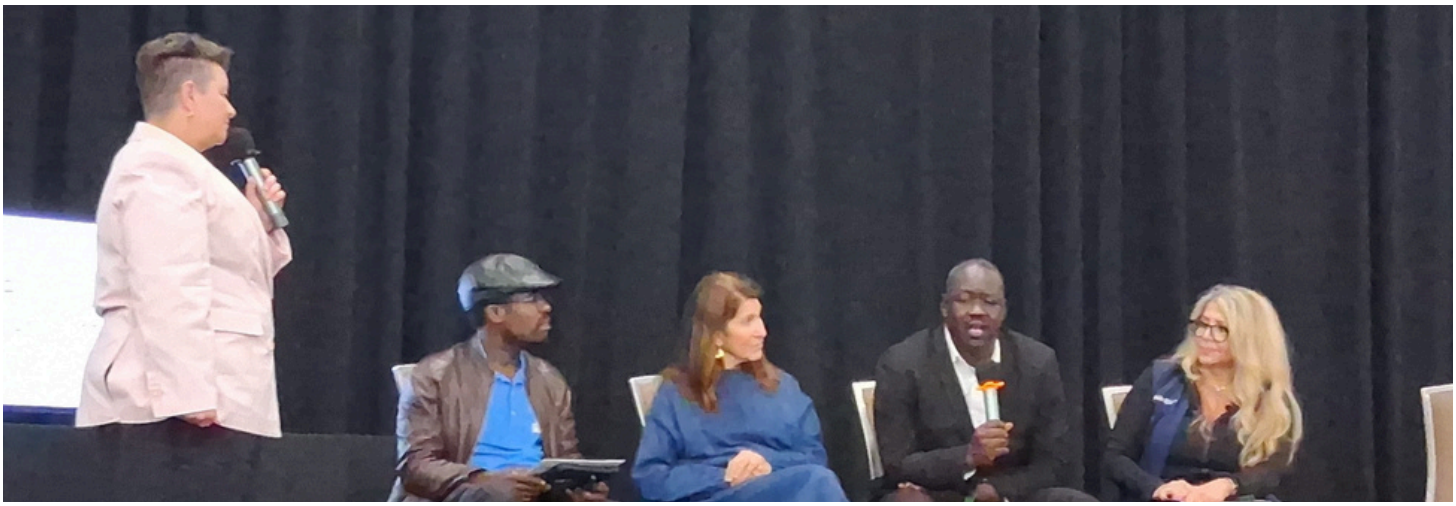
important dimension to the conversations. Environmental progress depends not only on technology and funding, but also on our ability to collaborate across differences.

A particularly memorable moment was the dialogue on peace featuring Barry Rassin alongside a Nobel Prize laureate, reinforcing a truth often overlooked: peace and environmental sustainability are deeply connected. Resource scarcity, water insecurity, and ecological degradation can fuel conflict, while restoration and equitable development can help build stability.

For me personally, one of the most meaningful moments of the entire event was meeting my childhood hero, Sylvia Earle. Her lifetime of work advancing ocean science, marine conservation, and global awareness has inspired generations. To meet someone whose leadership helped shape my own sense of purpose was an unforgettable honour.

Across every panel, conversation, and connection, one message was clear: ESRAG members are leading the charge globally. From local riverbanks to international forums, from regenerative agriculture to renewable energy, from community resilience to peace-building, Rotary members are proving that service above self can also mean stewardship of the planet.

EarthX was not simply an event—it was evidence that a worldwide network of committed leaders is already building a more sustainable future.



ROTARY INTERNATIONAL NEWS

ESRAG AT RICON, TAIPEI

June 13-17, 2026

Make new connections and create unforgettable memories at the 2026 Rotary International Convention in Taipei City, where traditional and contemporary culture intertwine beautifully.

Unsure what awaits you at a Rotary International Convention? Explore articles, videos, and photos from past conventions for a sense of their inspirational power. In Taipei, you'll join fellow changemakers from around the world to share innovative projects, exchange best practices, and form enduring friendships. The convention is packed with exciting breakout sessions, speakers, and more.

Discover Taipei's many charms and find more opportunities to connect by registering for the Host Organization Committee's Signature Events.

Unite for good with us at the 2026 Rotary International Convention in Taipei, Taiwan, 13-17 June 2026.

All RI events take place at Farglory Dome (Taipei Dome) and Taipei Nangang Exhibition Center (TaiNEX) unless otherwise indicated.

Register Today

ESRAG BOOTH

ESRAG has been successful in securing a booth in the House of Friendship at RICON in Taipei and to share the Environment Hub with other Rotary Action Groups.

If you are planning to attend the Rotary International Convention 2026, to be held between 13th–17th June, and able to help with the Booth please inform your participation to Board Director Caroline Dewiit using the Contact Form.

Contact Form

ESRAG HUB

This is being coordinated by Dr Chris Puttock and it will be shared with other RAGS

The ESRAG HUB at RICON Taipei is pleased to invite expressions of interest for speaker presentations during the House of Friendship.

We have eight presentation opportunities available over the course of the event and are seeking speakers whose work aligns with the following key ESRAG themes: biodiversity, circular economy, climate, food systems, pollution, and sustainability.

To be considered, presentations should:

- Demonstrate a clear connection to a Rotary club and/or district initiative
- Be delivered in person in Taipei during RICON
- Fit within a one-hour session, including a 20-minute presentation including a Q&A discussion

We need ESRAG members to help man the booth and presentations for the Environment Hub.

BREAKOUT SESSION

Neeraj Bhatnagar has been granted a breakout session on June 16th from 15.30-17.00 on "The Climate Crisis is not just Environmental – A Mindset and Communication Challenge."

The speakers are from various Rotary Action Groups including:

- Melanie Lewis
- Deb Mccaslin RAG4Girls
- AKS Bricia Elawar
- Michaele Hayes RAGFP
- Judith Diment ESRAG

RAGTIME

The Rotary Action Group Council is once again organising RAGTime at the Courtyard by Marriott in downtown Taipei near the Convention Center 19.00-21.00 on Thursday June 11, 2026.

NINA – YOUNG AMBASSADOR FOR ENDPLASTICSOUP AT RICON TAIPEI

Aeshnina Azzahra Aqilani (Nina), 18, from Java, Indonesia, will be a keynote speaker at the EndPlasticSoup breakout session during RICON in Taipei.

Breakout Session: Taking Action to Solve Plastic Pollution Together

This session will cover:

- The impact of plastic pollution on human health, including endocrine disruption
- Environmental consequences such as climate change and biodiversity loss
- How plastic affects water, soil, and air
- It will also highlight how individuals and communities can take action. With more than 1,000 clubs in 67 countries, EndPlasticSoup is creating global impact through projects and initiatives.

👉 Clubs are invited to join via:
https://endplasticsoup.org/registration/

Nina's Work and Mission

Nina will share her experiences leading her organization, **River Warriors**, which focuses on:

- Reducing plastic pollution
- Fighting the export of plastic waste from developed countries to the Global South

She will also discuss:

- The dangers of **microplastics**, especially for children and babies
- Practical solutions, such as **plastic-free school canteens**
- Awareness campaigns in schools across Indonesia

You can also meet Nina at the EndPlasticSoup booth in the **Environment area at the House of Friendship** in Taipei.

International Children's Peace Prize 2025

Nina was a **finalist** for this prestigious global award and received **second prize** for her efforts to raise awareness and reduce plastic pollution.

She is a dedicated young advocate for environmental justice. Inspired by her parents and her own experiences, Nina has:

- Written to the Indonesian government and international leaders
- Called for action to stop plastic pollution at its source
- Advocated for long-term, meaningful change

She has represented youth at major global events, including:

- **COP26**
- Plastic Treaty negotiations in **Ottawa** and **Busan**

Nina continues to inspire young people in Indonesia and beyond through her activism and leadership.

Her message to youth:
"Our voices are powerful. We have the right to speak up and be heard—so don't be afraid to stand up for the planet."
See: https://endplasticsoup.org/nina-finalist-international-childrens-peace-price-2025/

ROTARY AND THE NATIONAL SHELLFISHERIES ASSOCIATION

By Dr Christopher Puttock

The National Shellfisheries Association (NSA) held its 118 th annual meeting from March 22 to 26, 2026, at the Portland Marriott Downtown Waterfront in Portland, Oregon. This premier annual event gathers researchers, industry leaders, aquaculture farmers, and students to discuss all aspects of shellfish biology, ecology, restoration, and aquaculture, with a focus on Pacific Northwest species and their environmental challenges. The conference provided ideas, new science reporting, solutions, and opportunities for ocean fisheries and shorelines, and for all 300 participants, including Rotarians, interested in getting involved.

This year, the conference featured four prominent plenary speakers:

- Madonna Moss, Professor Emerita at the University of Oregon, and curator of Zooarchaeology at the University of Oregon Museum of Natural and Cultural History
- Bob Rheault, lead of the NGO East Coast Shellfish Growers Association, which represents over 1300 shellfish farmers from Maine to Texas
- Christopher Langdon, Professor Emeritus of Fisheries at Oregon State University, internationally recognised in aquaculture, nutrition, and genetics of mollusks and sea vegetables
- Andrew Suhrbier, Senior Biologist at the Pacific Shellfish Institute (Department of Fisheries and Oceans, Canada), heads the lead federal authority responsible for managing wild harvests and overseeing the rapidly growing aquaculture sector in Canada.

Over 40 sessions were coordinated by Research Professor Sandra Shumway, a Rotarian in the Department of Marine Sciences at the University of Connecticut (see more on Dr Shumway below). These sessions covered a diverse range of topics, including:

- Environmental DNA (eDNA): Advances in using molecular tools for monitoring larvae, pathogens, and both wild and cultured populations.
- Shellfish Restoration and Conservation: Research on living shorelines, ecological services, and resilience, including studies on ribbed mussels in New Jersey, USA.

- Hatchery Technology and Genetics: Innovations in breeding programs, particularly targeting Pacific oysters and their adaptation to changing ocean conditions.
- Aquaculture and Ecosystems: Managing interactions among shellfish, seaweed co-cultivation, and disease management.
- Contaminants and Invasive Species: Research on microplastics, ocean pollution, and the impact of the European green crab on shellfish habitats.
- Social-Ecological Systems: Interdisciplinary research linking policy, economics, and aquaculture.

The ESRAG Project Division Shellfisheries Working Group (SWG)

The Shellfisheries Working Group (SWG) of ESRAG's Projects Division was established five years ago by Dr. Acacia Warren as an extension of the Mangroves Working Group. The SWG has demonstrated leadership in advancing sustainable marine ecosystems and has formed strong international collaborations with Rotary clubs, including the Rotary Clubs of Quito and Chone, enhancing Rotary's global environmental footprint.

A central focus of the SWG efforts is its active participation in the annual National Shellfisheries Association conference, where ESRAG has led one of four parallel sessions throughout the five days. Dr. Warren, a prominent supporter of the NSA, led sessions this year that examined the connections between mangroves, shrimp, and epigenetics, highlighting the essential link between science and sustainability. At this year's 118th NSA meeting, ESRAG leaders, including Dr. Acacia Warren, Carolyn DeWitt, Dr. Kathy Twang, and Dr. Christopher Puttock, delivered impactful presentations on topics such as resource sustainability, Rotary Global Grants, and oyster reef restoration in Chesapeake Bay, Maryland.

For ESRAG, the highlight of the conference was the involvement of nine international students supported by the SWG. Each student contributed through presentations or research posters, despite some facing challenges due to visa restrictions. Through these efforts, ESRAG and its partners introduced nearly 100 new individuals to Rotary mission, creating pathways for future membership and collaboration. The conference also recognized the leadership of Dr. Warren and Dr. Puttock for their contributions to shellfisheries in the United States and
elsewhere in the world.

Looking ahead, new initiatives are in development, including projects in Hawaii and Costa Rica, as well as future collaborations in the Galápagos with local Rotary clubs and the Charles Darwin Foundation. The next NSA conference is scheduled to take place in Baltimore in March 2027, offering another opportunity to expand Rotary's impact on sustainable fisheries. Dr. Puttock will coordinate the sessions for Rotary and Shellfisheries at next year's National Shellfisheries Association in Baltimore, Maryland.

Our Colleague and Rotarian Fellow, Dr Sandra Shumway

Dr Shumway is a dedicated advocate for the shellfish industry, actively participating in working group sessions and meetings with fishermen. In the early 2000s, she organized the National Shellfish Workshop, which aimed to develop a National Shellfish Plan, and she was the first female president of the National Shellfisheries Association.

For over thirty years, Dr. Shumway has prioritized effective communication grounded in scientific credibility, collaborating with users, policymakers, and the press. She mentors students, serves on graduate committees, and teaches a Career Development course at the University of Connecticut, preparing students for various career paths.

Her research addresses industry needs by investigating toxin distribution in shellfish and aims to establish species-specific closures for safety in the shellfish industry. Additionally, she organizes the annual auction at the NSA Conference to support the NSA Student Endowment Fund, which assists students presenting their research.

She is recognised as a world authority on plastics in the ocean and is the co-editor of the book titled Plastics in the Sea: Occurrence and Impacts (2025). This comprehensive reference is written by renowned leaders in the field and synthesises existing knowledge on how mega-, macro-, micro-, and nanoplastics impact marine environments and life, including zooplankton, fish, invertebrates, birds, mammals, turtles, manatees, and other megafauna.

The chapters cover essential discussions on the presence, sources, and fates of plastics; methodologies for detection, chemistry, and degradation; impacts on organisms and food webs; implications for fisheries and aquaculture; policy and public engagement, as well as the economic and legal implications of plastic pollution. Plastics in the Sea: Occurrence and Impacts is an indispensable resource for marine resource managers, ecotoxicologists, fisheries stakeholders, policymakers, and academic researchers interested in the occurrence, effects, and mitigation of marine plastic pollution. A must-read for anyone involved with plastics.

THREE CAMPS, ONE FOREST: HOW THE GREEN INITIATIVE ACTUALLY WORKS

By Arnil Señoron,Project Chair, Rotary Club of Luntiang Maynila Prime – the lead club that initiated the project.

Most tree-planting campaigns fail. Here's what's different.

Moving Beyond One-Day Planting

Many tree-planting campaigns begin with enthusiasm and end with uncertainty. Thousands of seedlings go into the ground in a single day, yet months later only a fraction survive. The Green Initiative challenges this pattern—not by planting more trees, but by rethinking the system behind them.

At its core is a simple structure built around three interconnected sites: Durumugan, Tubigan, and Cambubuyugan. Rather than treating restoration as a single location or event, the initiative distributes responsibility across these three "camps," each contributing to a shared ecosystem.

Three Camps, One Living System

Durumugan focuses on upland forest regeneration, where degraded land begins its recovery. Tubigan protects water-linked ecosystems, strengthening biodiversity and watershed health. Cambubuyugan connects restoration with daily life, where communities actively manage and benefit from the land.

Individually, each site has a purpose. Together, they form one living system—resilient, adaptive, and grounded in local reality. This distributed model reduces risk and allows restoration to grow steadily over time.

Planting as a Practice, Not an Event

A defining difference of the Green Initiative is its commitment to year-round planting. Instead of waiting for a single season or campaign, communities plant continuously, guided by rainfall patterns, soil conditions, and local knowledge.

This shift transforms planting from a symbolic act into an ongoing practice. Seedlings are introduced when conditions are right, survival rates improve, and community engagement becomes part of

everyday life.

The Nursery: Where Success Begins

Long before trees were planted, success is shaped in local nurseries. These nurseries serve as the backbone of the initiative, ensuring seedlings are healthy, diverse, and ready at the right time.

By investing in nursery systems, the initiative builds local capacity and ownership. Communities are not just planting trees—they are growing them from the very beginning.

Where Ecology Meets Livelihood

What makes the model sustainable is its integration of agroforestry. Trees are combined with crops in ways that restore soil, increase biodiversity, and provide economic value.

This approach aligns environmental restoration with community well-being. When landscapes produce food, income, and ecological benefits at the same time, long-term stewardship becomes a shared interest.

A Model That Can Travel

The Green Initiative offers more than local impact. It provides a blueprint. Its strength lies in its simplicity: distribute effort, plant continuously, invest in nurseries, and connect ecology with livelihoods.

For Rotary and ESRAG communities worldwide, this approach can be adapted and sustained. Lasting impact does not come from planting more trees in one day. It comes from building systems that allow forests to grow for years to come.

Explore how your club can move from planting events to restoration systems. And create impact that lasts.

More resources and background information on sustainable action are available at **www.BecomeSustainable.org** and at **www.ESRAG.org**

In the next article, we take a closer look at the people behind the Green Initiative—and how community leadership turns this model into lasting change.

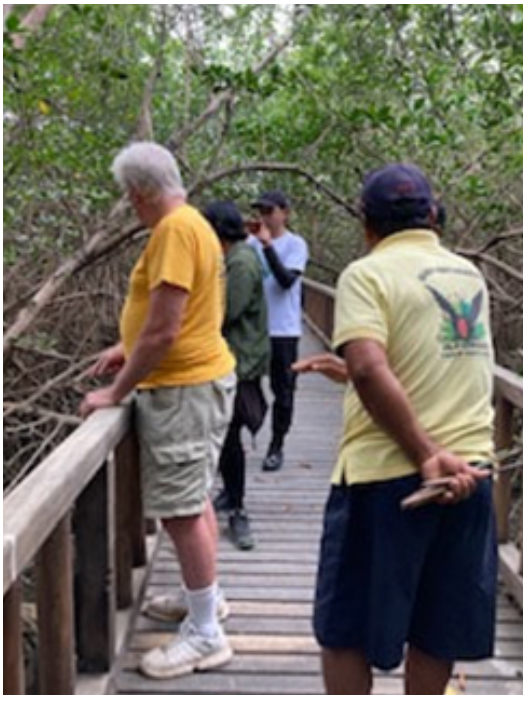
THE GALÁPAGOS MANGROVES PROJECT

By Acacia Alcivar-Warren 1-3 , Caroline DeWitt 4 , Steve Bender 5 , and Christopher Puttock 6

Despite strong protection, the mangroves of the Galápagos archipelago are considered “Vulnerable (VU)” by the International Union for Conservation of Nature (IUCN) (Fig.1). Mangroves of the Galápagos are a regional ecosystem subgroup (level 4 unit of the IUCN Global Ecosystem Typology) that includes the marine ecoregions of Eastern Galapagos Islands, Northern Galapagos Islands, and Western Galapagos Islands. The Galapagos province of Ecuador, mapped extent in 2014 was 36.6 km 2, representing 0.03%of the global mangrove area.

The biota is characterized by four species of true mangroves: red mangrove, black mangrove, white mangrove, and button mangrove. Each species has unique adaptations. The black mangrove, for example, the mangrove has specialized salt-extracting glands, and the white mangrove has structures called pneumatophores, which are roots that grow upward from the ground and help the mangroves breathe in oxygen even in waterlogged soils. These features are not only essential for the survival of these trees in the marine environment; they provide essential habitat for diverse marine species to complete their life cycles, including pelicans, frigate birds, iguanas, sea turtles, sea lions, and various shark species, as well as several economically valuable ones like the reef fishes, such as snappers and bacalao (a type of cod). Today, the Galápagos mangroves cover 37-45 km², about 2-3 times the broad estimate for 1970. Since 1970, the rate of change has been 1.1% per year.

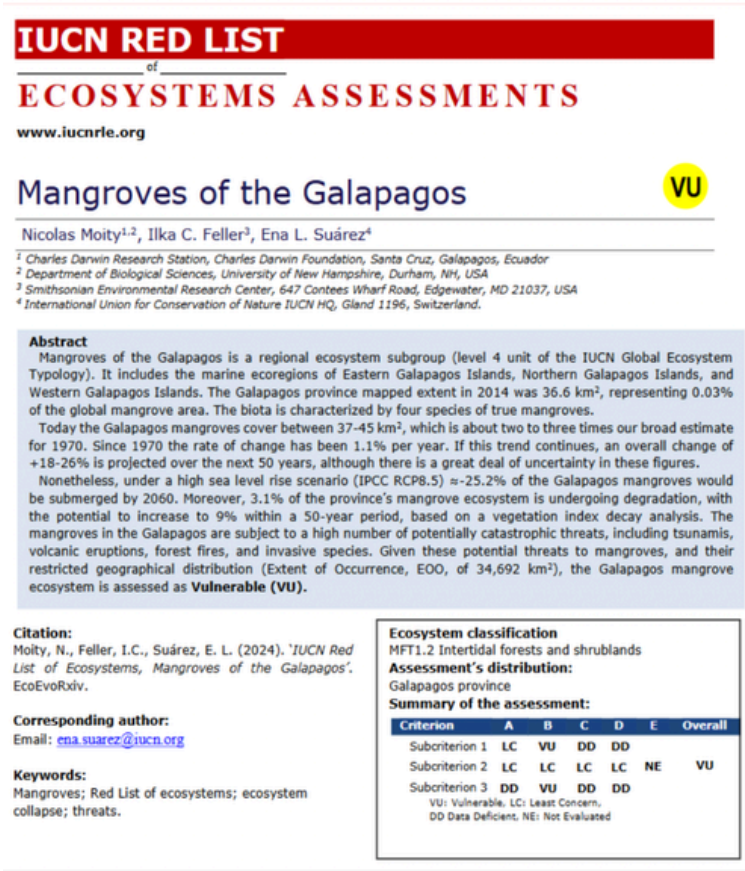
If this trend continues, an overall change of 18-26% is projected over the next 50 years, but there is uncertainty in these figures (Fig.1). Nonetheless, considering a high sea level rise scenario (IPCC RCP8.5), ~-25.2% of the Galápagos mangroves would be submerged by 2060. In addition, 3.1% of the province’s mangrove ecosystem is undergoing degradation, with the potential to increase to 9% within a 50-year period, based on a vegetation index decay analysis (Fig. 1).



The Galápagos Mangroves Project - Conservation Efforts and Challenges

The mangroves in the Galápagos are subject to a high number of potentially catastrophic threats: Natural Disasters like volcanic eruptions, tsunamis that cause rapid, large-scale damage, forest fires, and invasive species; Climate Change: rising sea levels could submerge up to 25% of mangroves by 2060, and extreme El Niño events disrupt nutrient cycles. Pollution: plastic debris carried by currents gets trapped, breaking down into microplastics and nanoplastics that enter the food web, harming wildlife. **Human Activity**: indirect human impacts like tourism and invasive species, challenging conservation efforts focused on blue carbon and biodiversity, boat damage, urban expansion, and fishing pressure disrupt ecosystems. It was because of these potential threats to mangroves and their

restricted geographical distribution that the Galápagos mangrove ecosystem was assessed as "Vulnerable (VU)" (Fig. 1).



IUCN RED LIST
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ECOSYSTEMS ASSESSMENTS
www.iucnrle.org

Mangroves of the Galapagos VU

Nicolas Moity[1,2], Ilka C. Feller[3], Ena L. Suárez[4]

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[4] International Union for Conservation of Nature IUCN HQ, Gland 1196, Switzerland.

Abstract

Mangroves of the Galapagos is a regional ecosystem subgroup (level 4 unit of the IUCN Global Ecosystem Typology). It includes the marine ecoregions of Eastern Galapagos Islands, Northern Galapagos Islands, and Western Galapagos Islands. The Galapagos province mapped extent in 2014 was 36.6 km², representing 0.03% of the global mangrove area. The biota is characterized by four species of true mangroves.

Today the Galapagos mangroves cover between 37-45 km², which is about two to three times our broad estimate for 1970. Since 1970 the rate of change has been 1.1% per year. If this trend continues, an overall change of +18-26% is projected over the next 50 years, although there is a great deal of uncertainty in these figures.

Nonetheless, under a high sea level rise scenario (IPCC RCP8.5) ≈-25.2% of the Galapagos mangroves would be submerged by 2060. Moreover, 3.1% of the province's mangrove ecosystem is undergoing degradation, with the potential to increase to 9% within a 50-year period, based on a vegetation index decay analysis. The mangroves in the Galapagos are subject to a high number of potentially catastrophic threats, including tsunamis, volcanic eruptions, forest fires, and invasive species. Given these potential threats to mangroves, and their restricted geographical distribution (Extent of Occurrence, EOO, of 34,692 km²), the Galapagos mangrove ecosystem is assessed as **Vulnerable (VU).**

Citation:
Moity, N., Feller, I.C., Suárez, E. L. (2024). *'IUCN Red List of Ecosystems, Mangroves of the Galapagos'.* EcoEvoRxiv.

Corresponding author:
Email: ena.suarez@iucn.org

Keywords:
Mangroves; Red List of ecosystems; ecosystem collapse; threats.

Ecosystem classification
MFT1.2 Intertidal forests and shrublands
Assessment's distribution:
Galapagos province
Summary of the assessment:

Criterion	A	B	C	D	E	Overall
Subcriterion 1	LC	VU	DD	DD		
Subcriterion 2	LC	LC	LC	LC	NE	VU
Subcriterion 3	DD	VU	DD	DD		

VU: Vulnerable, LC: Least Concern,
DD Data Deficient, NE: Not Evaluated

Fig. 1. IUCN Red List of Ecosystems, Mangroves of the Galapagos. Moity et al. 2024. EcoEvoRxiv.

Protected Status: The mangroves of the Galápagos archipelago are within a protected area, but events show their fragility. Blue Carbon: crucial for storing blue carbon, but climate change threatens this function. Research and Management: the Charles Darwin Foundation and other groups monitoring threats identify key areas and support management, but face challenges like insufficient funding and staffing.

Community Involvement: local initiatives and international NGOs support cleanups, reforestation, and sustainable practices, highlighting the need for broader systemic change. The FUCOBI Foundation of Ecuador will include the Galápagos mangroves in their efforts to conserve all Ecuadorian mangroves (Figs. 2 and 3).

It's clear that while localized actions help, global issues like climate change and plastic pollution require worldwide solutions to truly protect these vital ecosystems and the unique shellfish species they support like shrimps, clams, crabs, and the rare canchalagua (a black-shelled mollusk). Conserving these ecosystems as a crucial component of global environmental health. Together we can help implement successful conservation policies and guarantee that mangroves will keep providing their invaluable environmental services in Galápagos and elsewhere.

Fig. 2. Mangroves of Chone, Ecuador. Left: Dr. Acacia Warren and her team in Isla Corazon. Middle: Dr. Christopher Puttock of ESRAG during a visit to the Chone mangroves. Right: Dr.Puttock and Dr. Acacia Warren, ESRAG members, educating teachers and students from the Chone mangrove communities using foldscopes (paper microscopes) to identify contaminants in air and water. https://www.fucobi.org/.

To address insufficient funding and staffing FUCOBI will inform the Charles Darwin Foundation about developing a project for funding of community activities at the Galápagos mangroves through a global grant funded by Rotary International, like the global grant approved for the Rotary Club of Chone, Ecuador (not yet funded).

Information about how to write effective global grants for funding by Rotary International can be found here: https://my.rotary.org/en/take-action/develop-projects/developing-effective-projects.

Fig. 3. Mangroves of the Galapagos archipelago. Top: View of Caleta Tortuga Negra on the northern part of Santa Cruz Island, surrounded by mangroves that provide a refuge for young marine life, including sharks, sea turtles, and rays. © Melinda Weinstein. Middle: Fruits of the white mangrove (Laguncularia racemosa) on the coast of Santa Cruz Island, making it one of the four mangrove species recorded in the archipelago. © Galápagos Conservancy. Bottom: A pelican in the mangroves of Playa Tortuga Bay, Santa Cruz, Galápagos. These coastal ecosystems provide essential refuge for local wildlife. ©Galápagos Conservancy.

EARTHWIDE SOLAR COOKING FESTIVAL AND CONFERENCE

The Big Blue Sun Museum of Solar Cooking invites all Rotarians involved with the promotion of clean cooking, especially solar cooking, to attend, participate, present, or host a livestreamed event for our:

Earthwide Solar Cooking Festival and Conference
September 12 - 30, 2026
"Onward and Sunward: Solar Thermal Food Processing Research, Events, and Promotion"

The Festival and Conference will cover all aspects of solar cooking including its critical role in halting deforestation, pasteurizing water from unclean sources, and freeing up families from the expense, labor, and health detriments of cooking with wood, biomass, or fossil fuels.

The event will be decentralized and dispersed: We will have no single host city or region, but rather everyone can assemble an event to livestream for the earthwide attendees, or record a presentation or workshop to be aired during the conference dates. No travel expenses! And, there will be no fee for participation or attendance. This is an alternative format for a conference, and is intended to reduce the carbon footprint and expenses of hundreds of attendees flying to one central location. Further, we will not require that recorded presentations be in English. We aim to eliminate all barriers to

participation.

You will have four months to prepare a recorded presentation, or to schedule a live streamed demonstration of your work where ever it is sited. You can take this opportunity to have your team on the ground share their story and learnings from their efforts.

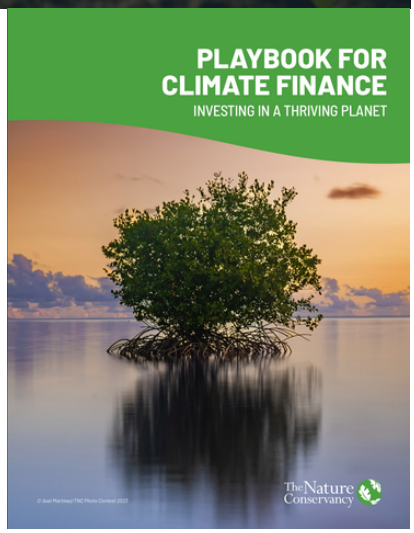
The deadline to submit an outline for a livestreamed event, or an abstract for a recorded research presentation, is June 15, 2026. Recordings for accepted presentations, or the links for livestream events (Youtube, Facebook, etc.) must be shared by August 15.

Questions about the Festival/Conference, ideas for potential events or presentations, or to requests to register to attend, should be emailed to Luther Krueger, museum@bigbluesun.net.

If you aren't familiar with the growing field of solar cooking, we also urge you to join the largest social media group dedicated to the topic and related matters. Finally, Solar Cookers International has compiled a wiki that has covered developments in the field for decades.

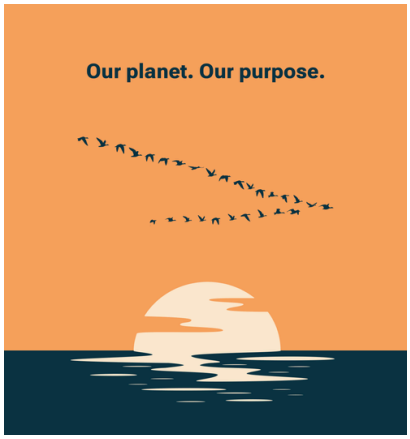
PLAYBOOK FOR CLIMATE FINANCE

Investing in a Thriving Planet
Nature Conservancy
PlaybookForClimateFinance_2025.pdf



OUR PLANET OUR PURPOSE UNEP ANNUAL REPORT 2025

The 2025 Annual Report explores UNEP's results and impacts across climate action, nature and
land action, pollution action and more
Annual Report 2025 | UNEP - UN Environment Programm



JOIN ESRAG!

Rotary | ESRAG ENVIRONMENTAL SUSTAINABILITY ROTARY ACTION GROUP

MEMBERSHIP INFORMATION

The Environmental Sustainability Rotary Action Group assists Rotary clubs, districts and multi-districts in:

- Planning and implementing impactful and environmentally sustainable service projects
- Educating and building awareness
- Building global and local networks
- Inspiring sustainable living/action
- Supporting Rotary International's environmental initiatives.

ESRAG inspires and empowers the Rotary family with extensive expertise, networks, education, and best practices to help implement sustainable and impactful environmental projects, informed by our six themes: Biodiversity, Climate Change, Food Systems, Pollution, Circular Economy, and Sustainable Living.

MARCH WEBINARS AND EVENTS

ESRAG is planning four webinars in March, designed to inform, empower, and energise ESRAG members and Rotarians committed to protecting our planet.

- **ESRAG Solar Prizes on May 6th** at 9:00 a.m. - 10:00 a.m. EST/2:00 p.m. - 3:00 p.m. UTC
- **Bioprospecting and application of bacteria-based bio stimulants in agriculture on May 13th a**t 9:00 a.m. - 10:00 a.m. EST/2:00 p.m. - 3:00 p.m. UTC
- **Nutrient Pollution and Ecosystem Management on May 20th at** 9:00 a.m. - 10:00 a.m. EST/2:00 p.m. - 3:00 p.m. UTC
- **Prize winner ESRAG Prize Rotary Club if Istanbul on May 27th at** 9:00 a.m. - 10:00 a.m. EST/2:00 p.m. - 3:00 p.m. UTC
- **Rotary Peace Pole Dedication in Santiago, Spain on June 3rd at** 9:00 a.m. - 10:00 a.m. EST/2:00 p.m. - 3:00 p.m. UTC

Your participation strengthens our collective impact.

All ESRAG members, Rotarians, and Rotaractors are warmly invited.
Check this All ESRAG members, Rotarians, and Rotaractors are warmly invited.

FOLLOW US & JOIN THE CONVERSATION.

EMAIL US AT:

newsletter@esrag.org